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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/394,428	09/13/1999	CHARILAOS CHRISTOPOULOS	2466-35	4221

7590 02/13/2002
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EXAMINER

SENGI, BEHROOZ M

ART UNIT PAPER NUMBER

2613

DATE MAILED: 02/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 09/394,428	Applicant(s) CHRISTOPOULOS ET AL.	
	Examiner Behrooz Senfi	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 13 September 1999.
- 2a) This action is **FINAL**.
- 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-21 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-21 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 1.19(a)-(d) or (f).
 - a) All b) Some * c) None of:
 - 1. Certified copies of the priority documents have been received.
 - 2. Certified copies of the priority documents have been received in Application No. _____.
 - 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 - * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) Interview Summary (PTO-413) Paper No(s). _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other:

DETAILED ACTION

Specification

1. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 – 2, 4 – 6, 8 – 12, 14 – 16, 18 - 21, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US 5,107,345).

Regarding claims 1 – 2 and 20, Lee '345 teaches means for calculating the DCT of a sequence of length N (i.e. fig. 1, $N = 16$, therefore $N/2 = 8$, col. 2, lines 26+) and $N \times N$ DCT (col. 4, lines 14+).

Lee '345 does not explicitly teaches $N \times N$ DCT directly from two sequence of length $N/2 \times N/2$ and also $N \times N$ DCT directly from four DCTs of four adjacent blocks.

However, Lee '345 teaches dynamically treating DCT coefficient blocks (i.e. col. 9, lines 51+) using variable block size (e.g. sub-block) such as 8×8 or 4×4 and so forth for the purpose of reducing blocking artifacts (col. 7, lines 31+ and col. 8, lines 46+).

In view of the above, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to take advantage of Lee's teaching and

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modify the system, since Lee '345 in particular describe an adaptive DCT scheme coding and mentioned using variable block size for the benefit of the desired design, like speed up the processing (i.e. col. 8, lines 50+).

As for claims 4, by teaching of Lee '345 of DCT coefficient transform it is obvious that N is equal to 2^m , to the power of m , where m is a variable integer greater than 0.

Regarding claims 5, 6 and 8, limitations claimed pertain to a corresponding decoder having means, which would carry out the corresponding inverse operations of the encoder as recited in claims 1 – 4 to complete the processing of transformation as evidenced by Lee '345 (i.e. fig. 6, unit 108 and col. 15 lines 11+).

Regarding claims 9 – 10, limitations claimed are substantially similar to claims 1 – 2, 4 – 6, and 8, therefore the ground for rejecting claims 1 – 2, 4 – 6, and 8 also apply here.

Regarding claims 11 – 12 and 14 -16 and 18 – 19 and 21, limitations claimed are substantially similar to claims 1 – 2, 4 – 6 and 8, are the method of the processing, therefore the ground for rejecting claims 1 – 2, 4 – 6 and 8, also apply here, since the modified encoder of lee '345 would have carried out the method steps as claimed.

Allowable Subject Matter

4. Claims 3, 7, 13 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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5. The following is a statement of reasons for the indication of allowable subject matter: although Lee '345 teaches the equation common to claim 3 (col. 4, equation 1), Lee '345 fails to teach the other equations and steps and their specific variables.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure;

Wober et al. (US 5,563,718) image coding by use of discrete cosine transforms.

Nakajima et al. (US 6,243,421) apparatus for decoding coded video data with reduced memory size.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Behrooz Senfi** whose telephone number is **(703)305-0132**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Chris Kelley** can be reached on **(703)305-4856**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

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Any inquiry of a general nature or relative to the status of the application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

B.S. B.S.

02/08/02


CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600